



Highlands and Islands Enterprise
Iomairt na Gàidhealtachd 's nan Eilean

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24 June 2022

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To whom it may concern

HIE Response: Ofgem's Call for Input: Locational Pricing Assessment

Highlands and Islands Enterprise (HIE) is the Scottish Government's economic and community development agency for the North and West of Scotland, from Shetland to Argyll and the Outer Hebrides to Moray. In line with the Enterprise and Skills Strategic Board and the Scottish Government, HIE has set out a clear vision for sustainable and inclusive economic growth in every part of the Highlands and Islands.

HIE has worked with a number of local authorities (Shetland Islands Council, Orkney Islands Council, Comhairle nan Eilean Siar, Highland Council and Argyll & Bute Council) and Scottish Government in the preparation of this response. We would like Ofgem to consider this response as jointly representing all our views. This will be in addition to a number of those included submitting individual responses.

The low carbon economy and renewables sector already contribute significantly to the region and represent a major economic, social and industrial opportunity. Our oil and gas industry will continue to play a key role in supplying energy but will also afford the skills and expertise to support our transition to a highly productive, low carbon future. HIE is committed to building on the region's international reputation for excellence in energy and low carbon, and to forging collaborative partnerships to further strengthen the industry and our position in it.

From early advances in local energy systems on our islands and marine energy technology development and deployment, through to large-scale industrial developments supporting offshore wind, subsea engineering and ultra-deepwater capabilities for decommissioning, the whole region is exceptionally well-placed to capitalise upon the UK and Scottish Governments' commitments to move to a net zero, decentralised and locally based energy system.

We welcome the opportunity to provide our views on the proposals outlined in the Call for Input and as ever, would be pleased to discuss our response in more detail.

It is being suggested by the ESO ^[1] that when the North to South energy flows become congested, Locational Marginal Pricing (LMP) could be used to give a lower price in Scotland to encourage export rather than import over the interconnector.

The implementation of LMP would necessarily lead to significantly lower wholesale pricing in Scotland than in England and Wales. This could cause financial difficulties for existing generation in Scotland where the wholesale price is reduced, as well as limiting opportunities for developers to find financially viable sites within such an affected area. The negative impact to all types of generation in the region would cause harm to the Scottish economy and the people of Scotland. Even the consideration by Ofgem of such a change could impact investor confidence.

In order to reach challenging net zero targets, Scottish generation will be essential, and is reliant on a supportive policy and regulatory environment. We are of the view that LMP will disadvantage northern generators whilst at the same penalise southern consumers and does not allow for a diverse energy mix. This seems to go against all that the Scottish and UK Governments are trying to achieve to ensure swifter deployment of renewable technologies, reducing our reliance on imported fossil fuels.

Call for input

1. The key opportunities associated with introducing more granular locational pricing in GB;

More granular locational pricing would rely on wholesale market signals alone, resulting in smaller capital investments rather than large-scale capital projects for instance additional electricity transmission capacity. This would go completely against Ofgem's objective of minimising the cost to the GB consumer and would also see the natural resources – particularly in the Highlands and Islands of Scotland – underutilised and ultimately, attaining net zero targets at risk.

Currently, there are times when energy must be constrained off due to network congestion. UK wholesale energy prices at such times may still send the signal to interconnectors north of the constraint to import into the UK. This compounds the problem and increases costs. We are of the view that this issue could instead be mitigated by using flexibility markets without then putting at risk the significant investment required to reach net zero.

When the power flows from Scotland to England become constrained, under LMP the wholesale price of electricity for delivery in Scotland should fall and be free from marginal constraint cost. If that was the case, this would benefit consumers in the region with cheaper energy through the pricing signal designed to increase demand flexibility. Unfortunately, the benefits to consumers would be in contrast to the disadvantages to generators would likely experience a significant loss in revenue. We would also have serious concerns about how attractive the region would be for future projects which could provide substantial economic and community benefit to the region.

2. The key implementation challenges, risks and mitigations

The ESO previously stated ^[2] that LMP would need implementing within 5 years to give any payback. This raises questions over the longevity and true benefits of such a scheme, particularly at a time when Ofgem has recently committed to a reform of the current Transmission Network Use of System (TNUoS) methodology. This is expected to be a long-term review, and as such, introducing a new mechanism at this stage risks causing more harm than good.

If LMP were to be implemented, then with regional, or even nodal changes to wholesale pricing around GB, it is not clear what would happen to the strike price of new CfD contracts. Not only could this weaken investor confidence, but it could also make projects economically unviable or push projects South where the strike price may be higher.

We also have concerns around existing renewable generation that already has CfD contracts in place. This would lead to a 2-tier system, which could be damaging to the market if viewed as unequal. Additional support of CfD prices within an LMP model would be an indicator that LMP is not suitable for GB market in its current state and could be seen as a way of forcing certain other power stations out of the market.

Existing generation in Scotland under the RO scheme will not be as well protected, and where a project was developed with an expectation of wholesale market prices, this could force the project out of the market.

LMP does not address the problem – that there is insufficient network to deliver the generation. If LMP were to function as intended, giving an investment signal, generation in Scotland would need to decrease. This seems at odds with the future energy strategy of GB ^[3] which relies on 25GW of planned offshore wind development in Scotland. On this basis, it is also not compatible with the delivery of net zero targets ^[4], either.

It has been shown that the GB Electricity market is efficient even if there is a lack of liquidity over some time horizons. The introduction of nodal price setting raises questions over liquidity and competition in prices at such a granular market level. With a single (SO) body responsible for setting prices around GB, they would become a price maker, rather than a price taker. The outcome would be that the GB electricity market would become a regulated market rather than an efficient and competitive market.

There is a true risk in implementing LMP in GB where the system is so heavily constrained. In other countries where LMP has been successfully implemented, the constraint costs must have been able to give a clear price signal that was not in conflict with any larger strategic investment decisions. If Economic Dispatch is at day ahead and within day, then the Unit Commit model prior to this must have a good prediction of constraints or else significant post event cost reconciliation would be required. To have a good historic understanding and prediction of constraint costs requires some stability. Neither of these are the case in GB.

In order for LMP to be successful, prices would need setting in the long term as well as the short term time horizon. This would be needed to avoid surplus generation in Scotland, for example, being purchased for delivery to England. It is unclear how the SO would have the detail to control this accurately, given the uncertainty in current constraint forecasts even one month out.

The lowering of prices in Scotland through LMP may or may not reduce the import of energy over the interconnectors. This depends on the economics of the energy system at the other end of the interconnector. Furthermore, if other countries were to follow suit, and prices over interconnectors become set by a regulating body at both ends, there is no evidence to show that imports could be stopped by this methodology rather than triggering a price undercutting battle. There needs to be a simpler way of addressing such specific problems in the market and regulating the flow of energy through interconnectors.

GB generation has been invested in, built and delivered based on a national wholesale price model. If this were to be changed then all the economics of these stations would change. There would be winners and losers, windfall gains and losses, the latter of which could force closure of some generation plant. This would be a significant concern to the Highlands and Islands where renewable generation and associated economic activity (consenting, build and operations and maintenance) provide welcome employment opportunities in some of our more fragile areas. To lose out on this would undoubtedly go against the levelling up ambitions of the UK Government.

3. The proposed approach to modelling zonal and nodal market designs

It appears that the GB electricity market is not ready for implementation of LMP simply because the transmission network in its current state would cause too many market distortions.

Generation continues to be connected ahead of network reinforcement. This may not strictly be under the “Connect and Manage” initiative, but it is in the same spirit. An alternative approach would be to reinforce the network earlier to avoid having a constrained system. Possibly, a strategy over future GB generation could be devised in such a way that infrastructure could be planned and delivered incrementally as needed and in step with delivery of new generation rather than lagging behind.

The annual cost of constraints is predicted by the ESO ^[1] to rise to £2.3 billion for 2026. The concept of using LMP to recover a significant proportion of this from generation within Scotland will deter investment and reduce both the need and the business case for further investment in the transmission network infrastructure. Were such reinforcements economic on a project-by-project basis, the current problems would not exist. However, until the output of individual projects is not restricted by wider strategic development, LMP cannot provide an appropriate signal to investment.

Current ESO assessment is used to decide between the cost of building network infrastructure or of paying constraint costs. As such, the constraint costs paid are anticipated. Any escalation of these costs due to unwanted import through interconnectors at times of a constrained system should be built into such ESO assessment and already accepted as the cheaper option.

Planned and anticipated constraint costs could be seen as a cost of running the transmission network, and therefore included within TNUoS. These costs would end up as part of the Transmission Demand Residual (TDR), but the variation in constraint costs to the anticipated could be seen within BSUoS and the efficiencies of the assessment over decision to build understood.

The current assessment of build network vs pay constraints may not be looking at a sufficiently long time horizon.

The first BSUoS task force concluded that BSUoS charge “*does not currently provide any useful forward-looking signal which influences user behaviour to improve the economic and efficient operation of the market*”. Part of the problem with BSUoS is that it is not predictable, and generators would not be able to react to the cost or influence it. Even with LMP it is unclear how the ESO would be able to predict constraint costs in order to send the correct market signals, and how generators will be able to predict this variation in market distortions from one node to another and one half hour to another in order to make informed investment decisions.

An alternative approach would be to apply LMP only at strictly necessary nodes which are causing the escalating costs, as already identified by the ESO, such as the interconnector nodes. Another alternative might be for the ESO to only set market depth at a nodal level rather than price, but this may still cause a similar level of harm to the effected generators.

The LMP locational signal would be stronger than TNUoS. Given the potential of significant increase in the North-South TNUoS wider tariff differential has already seen RIIO-T2 rezoning put on hold and a call for evidence on TNUoS. It is unclear why Ofgem would want to increase this price differential by a different means (of LMP).

As we have set out, we have strong concerns over the implementation of Locational Marginal Pricing and understand that these concerns are shared among industry, as well.

We would welcome the opportunity for further discussion and look forward to hearing the outcome of the call of input.

Yours faithfully,

Elain MacRae
Head of Energy Strategy

1. References

- [1] National Grid ESO, "National Grid ESO: Net Zero Market Reform - Phase 3 Conclusions," [Online]. Available: <https://www.nationalgrideso.com/document/247306/download> .
- [2] National grid, "Recording of the National Grid ESO's conclusion presentation: Net Zero Market Reform," 2022. [Online]. Available: https://players.brightcove.net/867903724001/default_default/index.html?videoId=6301702657001.
- [3] GOV.UK, "British energy security strategy," 7/4/22. [Online]. Available: <https://www.gov.uk/government/publications/british-energy-security-strategy>.
- [4] GOV.UK, "Net Zero Strategy: Build Back Greener," 5/4/22. [Online]. Available: <https://www.gov.uk/government/publications/net-zero-strategy>.